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09/847,142	05/02/2001	Terho Kaikuranta	297-010321-US(PAR)	6584

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EXAMINER	
WONG, ALBERT KANG	

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2635	18

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/847,142	Applicant(s) KAIKURANTA ET AL.	
	Examiner Albert K Wong	Art Unit 2635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *15-16*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. This Office action is in response to the amendment filed April 23, 2004. Claims 1-29 are pending. Claims 1, 16 and 21 have been amended and new claim 29 has been entered. Applicant's arguments have been considered.

Prior rejections withdrawn

2. None.

Prior rejections maintained

The prior rejections have been maintained and repeated below.

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-7, 11, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton 5,847,336 in view of Stanek 5,936,554.

Regarding claim 1, the claimed keys are shown as item 14; the switching means is shown as item 62; and the illumination means s shown as item 18. Thornton teaches LEDs but the LEDs are not necessarily layered foil structures. As admitted in the specification, of the instant application, OLEDs are layered foil structures. It would have been obvious to one of ordinary skill in the art to substitute a conventional LED for an OLED since they perform the same light emitting functions. Thorton does not teach a means for dynamically illuminating individual keys with different illumination effects. Stanek teaches in col. 5 a keyboard with means for

dynamically controlled illumination of individual keys. It would have been obvious to include a means to effect such illumination controls for the reasons stated in col. 8.

Regarding claim 2, see claim 1.

Regarding claims 3 and 4, see figure 6. It is conventional to connect a key or a light source to a ground potential which forms a return path for the circuit.

Regarding claim 5, see figure 3.

Regarding claim 6, it is conventional to use voltage inputs to control the state of a device.

Regarding claim 7, the use of a switch per light is considered an obvious design choice since the number of switches per light is not critical. The voltage control lines have been discussed above.

Regarding claim 11, see figure 3.

Regarding claim 16, the keyboard made with a plurality of LED made of layered foil structures has been discussed in claim 1. It would have been obvious to use the keyboard in the same way as a keyboard made with conventional LEDs since the LEDs function equivalently. Thorton does not teach a means for dynamically illuminating individual keys with different illumination effects. Stanek teaches in col. 5 a keyboard with means for dynamically controlled illumination of individual keys. It would have been obvious to include a means to effect such illumination controls for the reasons stated in col. 8.

3. Claim 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton and Stanek as applied to claim 5 above, and further in view of 11-126047.

Regarding claims 8 and 9, Thornton does not explicitly teach a converter or a serial to parallel controller. 11-126047 teaches the converter/controller function. It would have been

obvious to use the control circuits to convert illumination commands into actual signals for controlling the lights.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton, Stanek, and 11-126047 as applied to claim 8 above, and further in view of 11-327509.

Regarding claim 10, the prior references do not teach the use of sequence memory to control the illumination. This feature is taught by 11-327509. It would have been obvious to use memory to control a display pattern since this would require relatively few hardware components.

5. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton and Stanek as applied to claim 1 above, and further in view of 08-148056.

Regarding claim 12, the structure in Thornton is similar to the claimed key structure with several minor differences. The claimed mechanical structure, dome layer, pcb, and key layer are shown in Figure 1. It would have been obvious that the particular key structure is merely an obvious design choice since a variety of mechanical structures perform the function equally well.

Regarding claim 13, the use of a perforated layer and an outer cover is conventional in switch structures. The perforated layer allows the contacts between the switch and the circuit board to complete the circuit for switch actuation and an outer cover allows an overlay to identify the keys.

Regarding claim 14, the use of OLEDs have been shown to be obvious.

Regarding claim 15, the use of light guides is conventional in lighted keyboards and permits the use of a single light source to illuminate an area.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton and Stanek as applied to claim 16 above, and further in view of 08-265413.

Regarding claim 17, 08-265413 teaches the function of using keypad illumination to identify the call. It would have been obvious to combine the references since they are in the same field of endeavor. The use of the same device in a known way is considered obvious.

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton and Stanek as applied to claim 16 above, and further in view of 6-274261.

Regarding claim 18, the reference teaches the illumination of specific keys in specific modes to indicate that one key is more preferable than others. It would have been obvious to use selective lighting to help the user distinguish the critical keys over the remaining keys of the keyboard to simplify usage.

8. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton and Stanek as applied to claim 16 above, and further in view of 11-88948.

Regarding claims 19 and 20, the reference teaches the use of games on cell phones using the keypad of the phone. As stated above, it would have been obvious to selectively illuminate keys to aid the user in key selection.

9. Claims 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stanek.

Regarding claim 21, the claimed mechanical support structure is shown as figure 3, item 52; the claimed plurality of keys is shown in figures 1 and 8; and the claimed layer with switching function and illumination structure for the keys is shown as item 48. The illumination structure is not a layered foil structure but conventional LEDs. As admitted in the specification, of the instant application, OLEDs are layered foil structures. Stanek teaches in col. 8, lines 65-

end that other illumination means may be used to illuminate the keys. It would have been obvious to substitute an OLED for a conventional LED since they are functionally equivalent.

Regarding claim 22, Stanek teaches that the illumination devices are reconfigurable for different illumination effects. It would have been obvious that where foil structures are used, these devices may also be reconfigured to achieve the same desired functions.

Regarding claim 23, as stated above, it would have been obvious to use OLEDs since they are functionally equivalent to conventional LEDs.

Regarding claim 24, applicant admits on page 6 of the specification that organic FET comprise conventional switches. It would have been obvious to use such devices when using an OLED because the use of devices with similar processing structures allows the devices to be easily integrated onto a substrate.

Regarding claim 25, Figure 7 teaches the use of a circuit board to support the switching layer.

10. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stanek as applied to claim 21 above, and further in view of Uggmark and Thorton.

Regarding claim 26, Stanek shows the claimed pair of conductive patterns in figures 6 and 7. Stanek does not show a resistive strip section that links the conductive patterns. Figure 2 of Uggmark teaches a prior art keyboard with resistive strip sections which link conductive patterns for keys having a first and a second end. It would have been obvious combine the teachings since they are in the same field of endeavor. It is understood that key arrays are not limited to one particular structure. Uggmark does not show illumination structures coupled to a common coupling point. Thornton teaches a plurality of illumination structures with addressable

lines. As stated above it would have been obvious to combine Thornton with Stanek and the use of foil structures would also have been obvious. One of ordinary skill in the art would have a knowledge of basic electrical systems. It is conventional to connect a plurality of light sources to a common voltage and to use the other input to create a voltage differential to actuate a particular light. Thus, it would have been obvious to connect one end of the illumination structures to a common point to establish the common potential. Such a configuration simplifies the circuitry.

Regarding claim 27, Figure 3 of Thorton shows control lines equal to the number of illumination structures for individual control.

Regarding claim 28, it would be understood by one of ordinary skill in the art that the control lines of Thornton input voltages to actuate the individual illumination structures.

New rejections

11. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stanek.

Regarding claim 29, the claimed mechanical support structure is shown as figure 3, item 52; the claimed plurality of keys is shown in figures 1 and 8; and the claimed layer with switching function and illumination structure for the keys is shown as item 48. The illumination structure is not a layered foil structure but conventional LEDs. As admitted in the specification, of the instant application, OLEDs are layered foil structures. Stanek teaches in col. 8, lines 65-end that other illumination means may be used to illuminate the keys. It would have been obvious to substitute an OLED for a conventional LED since they are functionally equivalent.

Remarks

12. Applicant argues limitations not found in the claims. The preamble has been amended to recite a mobile phone. The preamble is not given any patentable weight because the body of the

claim is not directed to a mobile phone. The limitation is merely a suggested use. Further, it is well known that illuminated keyboards are not limited to any particular device. Mobile phone have illuminated keypads.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert K Wong whose telephone number is 703-305-8884. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Horabik can be reached on 703-305-4704. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Albert K. Wong
July 6, 2004